

METHOD AND SYSTEM FOR INTERFERENCE
CANCELLATION FOR HIGH SPECTRAL EFFICIENCY
SATELLITE COMMUNICATIONS

ABSTRACT OF THE DISCLOSURE

5 Systems and methods for interference cancellation for high
spectral efficiency satellite communications enabling efficient utilization
of available bandwidth through overlapping adjacent channels. Data
information is received along with noise information, and a filter bank is
adapted to receive and filter the waveform and output channel infor-
10 mation including a combination of data signals and adjacent channel
interference signals. The filter bank is further adapted to provide
estimated data signals and to calculate estimated interference signals.
One or more interference generating processors are adapted to receive
the calculated estimated interference signals to enable the interference
15 generating processor to generate interference signals corresponding to
the calculated estimated interference signals. The interference
generating processor subtracts the interference signals from the
estimated data signals in order to output relatively more accurate
estimated data signals. A decision device is provided for use with the
20 interference generating processors for estimating data signals in
accordance with the relative ability of the interference processor to
cancel interference with the estimated interference signals.